NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICES STANDARD

Conservation Cover

(Acre)

CODE 327

DEFINITION

Establishing and maintaining permanent vegetative cover to protect soil and water resources.

PURPOSES

- Reduce soil erosion and sedimentation.
- Improve water quality.
- Enhance wildlife habitat.

CONDITION WHERE PRACTICE APPLIES

This practice applies on land retired from agricultural production requiring permanent protective cover, and on other lands needing permanent protective cover. This practice does not apply to plantings for forage production or to critical area plantings.

CRITERIA

General Criteria Applicable to All Purposes

Plants for conservation cover shall be perennials. Annuals may be included as nurse crops in planting mixtures of native or introduced perennial species. Annuals may also be used in wildlife food plots.

Species shall be adapted to the soil, range site, and climatic conditions.

Species planted shall be suitable for the planned purpose and site conditions. Use of noxious species shall be avoided.

Seeding rates and methods shall be adequate to establish the cover desired.

Planting dates, planting methods, and care of seed or planting stock shall ensure that planted materials have an acceptable survival rate.

Only viable, high quality and adapted seed or planting stock should be used.

Additional Criteria for Establishment of Grasses and Legumes

Introduced perennial grasses and legumes suitable for conservation cover along with planting rates and optimum planting dates are contained in Table 1.

Native grasses, legumes, and forbs suitable for conservation cover and/or wildlife habitat including adapted cultivars, seeding rates, and optimum planting dates are listed in Table 2.

Plant nutrients necessary for establishment of the cover shall be applied according to specifications in the conservation practice standard, Nutrient Management (590).

Lime shall be applied according to soil test recommendations.

Tillage operations for seedbed preparations shall be the minimum necessary to prepare a suitable seedbed to a minimum 3 inch depth. Plant residues will be managed on the soil surface to the extent possible.

Legume seed shall be inoculated with the recommended strain of Rhizobia bacteria for the species of legumes being planted. Do not use chlorinated water with legume seed inoculant as a sticking agent. Chlorine can kill the Rhizobia bacteria. Soft drinks (colas) containing sugar make excellent sticking agents for inoculating legume seed.

Plant during optimum planting dates. Seedbeds should be firmed with a roller or cultipacker after tillage operations are complete, but prior to seeding. Seed should be covered with soil to the proper depth if seeded with a drill or cultipacker seeder. If seed are surface broadcast, cover the seed immediately with a roller or cultipacker, spike-tooth harrow, or similar implement no deeper than ¼ inch.

Drills used for seeding native plants should be equipped with an agitator in the seed hopper and extra large seed delivery tubes for handling native grasses. Native seeds which have been debearded or are smooth in nature can be used in conventional drills. If legumes and/or forbs are included in the seeding mixture, the drill should be equipped with a small seed attachment.

Additional Criteria for Establishment of Trees and Shrubs

Shrubs suitable for wildlife plantings are listed in Table 3. Tree species suitable for planting are listed in Table 4. Planting dates and density shall be in accordance with the specifications contained in the standard, Tree/Shrub Establishment (612).

Competing vegetation or soil conditions which may inhibit tree/shrub establishment shall be treated according to the specifications contained in the standard, Forest Site Preparation (490). This may include chemical and/or mechanical methods.

Firebreaks should be established along fire hazard areas according to the specifications in the standard, Firebreak (394).

Additional Criteria for Establishment of Permanent Wildlife Habitat

Plant species suitable for wildlife are listed in Tables 2, 3, and 4 of this standard and also in the conservation practice standard, Wildlife Upland Habitat Management (645). Grasses, forbs, and legumes shall be planted in mixtures to encourage maximum plant diversity. A reduction in general agricultural seeding rates may be desirable for certain wildlife species such as bobwhite quail. Reduce seeding rates by 25 percent to create open areas to facilitate bird movement and forb production. Seeding rates must be sufficient for erosion control.

When using introduced plant species for enhancing wildlife habitat, some initially beneficial introduced species have the potential to invade and dominate natural plant communities. The invasion may be accomplished by aggressive growth, lack of natural control, wildlife transport, or a combination of means. If native vegetation is lost to competition from introduced species, ultimately problems will arise for certain wildlife species. Species such as Japanese honeysuckle, autumn olive, Russian olive, and Sericea lespedeza should be utilized with awareness and caution.

Additional Criteria for Establishment of Wildlife Food Plots

Annual species may be included for wildlife food plots in accordance with specifications in the standard, Wildlife Upland Habitat Management (645). Suitable species are listed in Table 5. Annual food shall be located on non-erodible portions of the field; otherwise practices to control erosion must be used. Food plot size, location, and establishment techniques shall be performed in accordance with Wildlife Upland Habitat Management (645).

Additional Criteria for Native Cover, Already Established

Native species, which provide acceptable cover and/or wildlife habitat, are listed in Table 6. An 80% cover consisting of one or more of these species shall be maintained to control erosion. Weeds and undesirable species such as the Chinese Tallow Tree shall be controlled.

CONSIDERATIONS

This practice may be used to promote the conservation of wildlife species in general, including threatened and endangered species.

Where applicable, this practice may be used to conserve and stabilize archeological and historic sites.

Consider rotating management and maintenance activities (e.g. mow one-fourth or one-third of the area each year) throughout the managed area to maximize spatial and temporal diversity.

Where wildlife management is the primary objective, food and cover value of the planting

can be enhanced by using the Louisiana Wildlife Habitat Evaluation procedure to aid in selecting plant species and habitat needs of targeted wildlife species.

Use native species when available. Consider trying to re-establish the native plant community for the site. Native eco-types may be easier to establish and more competitive than recommended cultivars, however availability may be a problem.

Soil suitability and site conditions should be considered in selection of plant species.

Limit soil disturbing activities to the minimum needed to prepare a suitable seedbed. Consider using no-till/strip-till in establishing grasses and/or legumes on sites with an erosion hazard.

Prescribed burning of native grasses, certain introduced grasses and legumes, and pines can improve vigor and stand density, control weeds and diseases, and set back plant succession. Burning may not be suited for all species such as tall fescue. Prescribed burning shall be avoided from April 15 – July 15 which is the primary nesting season for most ground nesting birds in Louisiana.

Long-term conservation cover will increase soil organic matter and improve soil structure and water holding capacity.

Close-growing species can reduce the amount of sediment in runoff and improve surface water quality.

Infiltration and percolation will result from improved soil health thereby improving groundwater quality and recharging aquifers.

PLANS AND SPECIFICATIONS

Specifications for the establishment of this practice shall be prepared for each field or treatment unit according to the Criteria and Considerations described in this standard. Specifications shall be recorded using appropriate worksheets and narrative statements in the conservation plan. Use the LA-CPA-10 (Rev. 3/98), LA-CPA-33A (Rev. 9/99), or the LA-CPA-33B (Rev. 9/99) as appropriate to document conservation cover establishment.

OPERATION AND MAINTENANCE

Maintenance activities shall be avoided from April 15 – July 15 so as not to disturb ground nesting species of birds. Exceptions may be granted when activities are necessary to facilitate the establishment of desirable cover.

Weeds and undesirable species (Chinese Tallow) will be controlled by mowing, tillage, herbicides, prescribed burning, or other practices

as appropriate. Treat only the portions of fields needing weed control (spot treatment).

Annual mowing of the cover for general weed control is not recommended.

In some areas, establishing the desired cover is difficult because of weed infestations. In those areas, it may be advantageous to use a pre-emergence herbicide to help establish the desired cover during the seeding year and for 1 or 2 growing seasons following seeding. Herbicides need to be labeled specifically for this purpose (non-cropland) and applied according to label directions and LCES recommendations and according to Pest Management (595) specifications.

Where wildlife habitat is the primary purpose, management activities should be rotated throughout the area. For example, mow only one-third of a field each year by mowing strips or alternate portions of the field instead of mowing the entire field each year. Prescribed burning is a natural component of native grass and/or pine habitats and should be utilized instead of mowing where feasible. Prescribed burning shall be performed in accordance with the standard, Prescribed Burning (338).

Nutrients for maintenance of conservation cover shall be applied according to specifications in Nutrient Management (590).

Table 1

INTRODUCED PERENNIAL GRASSES AND LEGUMES SUITABLE

FOR

CONSERVATION COVER

PERENNIAL GRASSES	SEEDING RATE LBS/ACRE	SEEDING DATES
Bahiagrass	30 lbs	September 1 – July 1 (N. LA) September 1 – August 1 (S. LA)
Common Bermudagrass (Hulled)	5 lbs	March 15 – July 1 (N. LA) March 1 – August 1 (S. LA)
Dallisgrass	7 lbs PLS [1/]	March 15 – July 1 (N. LA) March 1 – July
Tall Fescue	30 lbs	September 1 – November 15
Matua Bromegrass	30 lbs	September 15 – November 15
PERENNIAL OR RESEEDING ANNUAL LEGUMES		
Arrowleaf Clover	10 lbs	October 1 – November 15
Crimson Clover	25 lbs	September 15 – November 15
Red Clover	15 lbs	September 15 – November 15
Subterranean Clover	15 lbs	October 1 – November 15
White or Ladino Clover	5 lbs	October 1 – November 15
Hairy Vetch	30 lbs	September 1 – November 15
Singletary Peas (Non-scarified) (Scarified)	50 – 60 lbs 35 – 40 lbs	September 15 – November 15 September 15 – November 15
Common lespedeza	25 – 30 lbs	February 15 – March 15
Kobe lespedeza	35 – 40 lbs	February 15 – March 15

[1/] PLS – Pure Live Seed

[2/] Tall Fescue is known to be invasive and persistent throughout the southern region, however its spread in Louisiana is generally limited by summer temperatures which induce dormancy. If Tall Fescue is seeded for permanent cover, efforts should be made to prevent its spread to adjoining property.

Table 2

NATIVE PERENNIAL GRASSES/FORBS/LEGUMES

FOR

CONSERVATION COVER AND WILDLIFE HABITAT [1/]

PERENNIAL GRASSES [2/]	SEEDING RATE LBS/ACRE	SEEDING DATES [4/]
Switchgrass	3.0 lbs PLS [3/]	March 1 – May 30
Big Bluestem	6.0 lbs PLS	March 1 – May 30
Indiangrass	5.0 lbs PLS	March 1 – May 30
Little Bluestem	3.4 lbs PLS	February 15 – May 15
Eastern Gammagrass	10.0 lbs PLS	March 1 – May 30
Virginia Wild Rye	15 – 20 lbs PLS	September 1 – October 15
FORBS/LEGUMES		
Black-eyed Susan	1.0 – 2.0 lbs PLS	September 1 – December 31
Partridge Pea	10.0 lbs PLS	January 1 – February 15
Illinois Bundleflower	13.6 lbs PLS	February 15 – May 15
Maximillian Sunflower	1.0 lbs PLS	January 1 – March 31
Purple Prairie Clover	8.0 lbs PLS	November 1 – June 30
White Prairie Clover	8.0 lbs PLS	November 1 – June 30
Tick Clover (Beggar Lice)	12.0 lbs PLS	April 15 – July 1

[1/] Native plant species occur naturally in mixtures. The formula for calculating a seed mixture is:
Full Seeding Rate (FSR) X Desire Percent of Mix (DPM) = Seeding Rate Per Acre

[2/] Adapted Varieties of Native Grasses for Louisiana are:
Switchgrass – Alamo, Blackwell (upland sites only)
Big Bluestem – Kaw
Indiangrass – Lometa
Eastern Gammagrass – Pete
Virginia Wild Rye – Omaha

[3/] PLS – Pure Live Seed

[4/] The seeding dates listed in this table are for optimum conditions. It is preferable to seed certain species during the late winter/early spring to avoid drought and/or competition from introduced weed species. However, due to unfavorable weather conditions normal for this time of year, seedbed preparation and planting are often delayed until late spring/early summer when drought and/or weed competition are more severe. To avoid these conditions, native species can be seeded from September to December in Louisiana with satisfactory results. Planting at this time of year ensures good seedbed preparation and planting conditions. Freshly prepared seedbeds settle and are recharged by winter rains. Many species germinate before spring and survive better due to high soil moisture. The cold and damp conditions (6 – 8 weeks) also satisfies the dormancy conditions of many species.

Table 3

SHRUBS SUITABLE FOR WILDLIFE

SPECIES	PLANTING RATE PER/ACRE	SPACING AND SEEDLING SIZE	PLANTING DATE
American Beautyberry	1210	6’ X 6”, 12”+	December – March
Black Gum	302	12’ X 12’, 12”+	December – March
Blackberry	4840	3’ X 3’, 8”+	December – March
Crab Apple	302	12’ X 12’, 12”+	December – March
Deciduous Holly	302	12’ X 12’, 12”+	December – March
Dewberry	4840	3’ X 3’, 8”+	December – March
Elderberry	302	12’ X 12’, 12”+	December – March
Mayhaw	302	12’ X 12’, 12”+	December – March
Persimmon	302	12’ X 12’, 12”+	December – March
Plum	302	12’ X 12’, 12”+	December – March
Red Mulberry	302	12’ X 12’, 12”+	December – March
Rabbit Eye Blueberry	302	12’ X 12’, 12”+	December – March
Swamp Dogwood	302	12’ X 12’, 12”+	December – March
Shrub Lespedeza	10.0 – 15.0 lbs	(seed)	March 1 – April 15
(Bicolor or Thunberg)	5445	2’ X 4’, 12+	December – March

Table 4

TREES FOR CONSERVATION COVER

Species	Purpose/Remarks
Hardwood Species	Hardwood species planted for forest products should be planted at a rate that will yield an initial stand density of 300 – 550 trees per acre. Hardwood species planted for wildlife purposes should be planted at a rate of 302 trees per acre (spacing 12' X 12') and 80 % (242) of the trees planted should include at least 3 species best suited for wildlife. Hardwood seedlings should be planted from December through March.
Black Cherry*	
Black Walnut*	
Bald Cypress*[1/]	
Cottonwood	
Delta Post Oak*	
Green Ash*	
Hackberry-Sugarberry*	
Laurel Oak*	
Live Oak	
Mockernut Hickory*	
Native Sweet Pecan*	
Nuttall Oak*	
Obtusa Oak*	
Overcup Oak*	
Red Maple*	
Red Oak*	
River Birch	
Sawtooth Oak*	
Shumard Oak*	
Sweet Gum*	
Swamp Chestnut (Cow) Oak*	
Sycamore	
Water Hickory*	
Water Oak*	
White Oak*	
Willow Oak*	
Water Tupelo	
Yellow Poplar*	
Pine Species	
Loblolly Pine	Pine species planted for forest products should be planted at a rate which will yield an initial stand density of 600 – 900 trees per acre.
Longleaf Pine	
Slash Pine	
Shortleaf Pine	
	Pine species planted for wildlife should be planted at a rate of 435 trees per acre (10' X 10' spacing). Pine seedling should be planted from December through March.

*Denotes species best suited for wildlife

[1/] Bald Cypress is a conifer commonly associated with hardwoods.

Table 5

ANNUAL SPECIES SUITABLE FOR WILDLIFE FOOD PLOTS

SPECIES	SEEDING RATE LBS/ACRE	SEEDING DATES
Austrian Winter Pea	50 lbs	September 1 – November 1
American Joint Vetch	15 lbs	April 1 – May 31
Alyce Clover	15 lbs	March 1 – June 30
Arrowleaf Clover	10 lbs	October 1 – November 15
Subterranean Clover	15 lbs	October 1 – November 15
White/Ladino Clover	5 lbs	October 1 – November 15
Red Clover	15 lbs	September 15 – November 15
Crimson Clover	25 lbs	September 15 – November 15
Hairy Vetch	30 lbs	September 1 – November 1
Cowpeas	50 lbs	April 1 – July 31
Winter Wheat	90 lbs	September 15 – November 15
Cereal Rye	90 lbs	September 1 – October 15
Ryegrass	30 lbs	September 15 – November 15
Oats	120 lbs	September 15 – November 15
Browntop Millet	20 lbs	April 1 – July 30
Dove Proso Millet	40 lbs	April 1 – July 30
Sunflower (Peredovik)	30 lbs	April 1 – July 30
Soybeans	90 lbs	April 15 – June 30
Common Lespedeza	20 lbs	February 15 – March 15
Kobe Lespedeza	35 lbs	February 15 – March 15
Grain Sorghum	20 lbs	April 1 – June 30
Corn	15 lbs	March 1 – April 30
Chufa	50 lbs	April 15 – May 31
Partridge Pea	10 lbs	January 1 – February 15

Table 6

NATIVE VEGETATION (ALREADY ESTABLISHED) SUITABLE FOR CONSERVATION COVER [1/]

Moist Soil Area/Marsh	Native Prairie	Upland
Smartweeds	Showy Primrose	Beggar Ticks
Wild Millets	Prairie Blazing Star	Partridge Pea
Spike Rush	Black-eyed Susan	Little Bluestem
Panicums	Lance-leafed Coreopsis	Honeysuckle [3/]
Yellow/Purple Nutsedges [2/]	Mexican hat	Golden Rods
Paspalums	Gayfeathers	Rag Weeds
Deer Pea	Eastern Gammagrass	Switchgrass
Leafy Three-Square	Coneflowers	Lespedezas
Olney Bulrush	Big Bluestem	Prairie Grasses
Tender New Growth (Marsh)	Little Bluestem	
	Indiangrass	
	Switchgrass	

[1/] May include species not listed as determined by an NRCS biologist.

[2/] Title 7 of the Louisiana Department of Agriculture Regulations, Part XIII, §109, prohibits "Nutgrass." If nutgrass is included in cover already established, efforts should be made to prevent its spread to adjoining property.

[3/] Japanese honeysuckle is known to be invasive and persistent throughout all or most of its range in the southern region. If Japanese honeysuckle is included in cover already established, efforts should be made to manage it and prevent its spread to adjoining property.

APPENDIX A

SCIENTIFIC NAMES OF PLANT SPECIES

LIST OF TABLES 1 – 6

Introduced Perennial Grasses – Table I

Bahiagrass (Paspalum notatum)
Common Bermudagrass (Cynodon dactylon)
Dallisgrass (Paspalum dilatatum)
Matua Bromegrass (Bromus wildenowii)
Tall Fescue (Festuca arundinacea)

Perennial or Reseeding Annual Legumes

Arrowleaf Clover (Trifolium vesiculosum)
Crimson Clover (Trifolium incarnatum)
Red Clover (Trifolium pratense)
Subterranean Clover (Trifolium subterraneum)
White or Ladino Clover (Trifolium repens)
Hairy Vetch (Vicia villosa)
Singletary Peas (Lathyrus hirsutus)
Common Lespedeza (Kummerowia striata)
Kobe Lespedeza (Kummerowia striata)

Native Perennial Grasses/Forbs/Legumes – Table 2

Switchgrass (Paricum virgatum)
Big Bluestem (Andopozon gerardii)
Indiangrass (Sorghastrum nutans)
Little Bluestem (Schizachyrium scoparium)
Eastern Gammagrass (Tripsacum dartyloides)
Virginia Wild Rye (Elymus virginicus)
Black-eyed Susan (Rudbeckia hirta)
Partridge Pea (Cassia fasciculata)
Illinois Bundleflower (Desmanthus illioensis)
Maximillian Sunflower (Helianthus maximiliani)
Purple Prairie Clover (Petalastemum purpureum)
White Prairie Clover (Petalastemum candidum)
Tick Clover/Beggar Lice (Desmodium sp.)

Shrubs – Table 3

American Beautyberry (Callicarpa americana)
Black Gum (Nyssa biflora)
Blackberry (Rubus sp.)
Crab Apple (Malus angustifolia or ioensis)
Deciduous Holly (Ilex decidua)
Dewberry (Rubus sp.)
Elderberry (Sambucus canadensis)
Mayhaw (Crataegus opaca)
Persimmon (Diospyros virginiana)
Plum (Prunus americana or mexicana)
Red Mulberry (Morus rubra)
Rabbit Eye Blueberry (Vaccinium virgatum)

APPENDIX A

SCIENTIFIC NAMES OF PLANT SPECIES

LIST OF TABLES 1 – 6

Shrubs – Table 3 (Continued)

Swamp Dogwood (Cornus drummondii)
Shrub Lespedeza (Lespedeza bicolor or thunbergii)

Trees – Table 4

Black Cherry (Prunus serotina)
Black Walnut (Juglans nigra)
Bald Cypress (Taxodium distichum)
Cotton Wood (Populus deltoides)
Delta Post Oak (Quercus stellata)
Green Ash (Fraxinus pennsylvanica)
Hackberry-Sugarberry (Celtis laevigata)
Laurel Oak (Querscus laurifolia)
Live Oak (Quercus virginana)
Mockernut Hickory (Carya tomentosa)
Native Sweet Pecan (Carya illinoensis)
Nuttall Oak (Quercus nuttalli)
Obtusa Oak (Quercus obtusa)
Overcup Oak (Quercus lyrata)
Red Maple (Acer rubrum)
Red Oak (Quercus falcata)
River Birch (Betula nigra)
Sawtooth Oak (Quercus shumardii)
Sweet Gum (Liquidambar styraciflua)
Swamp Chestnut (Cow) Oak (Quercus michauxii)
Sycamore (Platanus occidentalis)
Water Hickory (Carya aquatica)
Water Oak (Quercus nigra)
White Oak (Quercus alba)
Willow Oak (Quercus phellos)
Water Tupelo (Nyssa aquatica)
Yellow Poplar (Liriodendron tulipferra)
Loblolly Pine (Pinus taeda)
Longleaf Pine (Pinus palustris)
Slash Pine (Pinus caribaea)
Shortleaf Pine (Pinus echinata)

Annuals – Table 5

Austrian Winter Pea (Pisium sativum subsp. arvense)
American Joint Vetch (Aeschynomene sp.)
Alyce Clover (Alysicarpus vaginalis)
Arrowleaf Clover (Trifolium vesiculosum)
Subterranean Clover (Trifolium subterraneum)
White/Ladino Clover (Trifolium repens)
Red Clover (Trifolium pratense)
Crimson Clover (Trifolium incarnatum)
Hairy Vetch (Vicia villosa)

SCIENTIFIC NAMES OF PLANT SPECIES

LIST OF TABLES 1 – 6

Annuals – Table 5 (Continued)

Cow Peas (Vigna unguiculatar)
Winter Wheat (Triticum aesitivum)
Cereal Rye (Secale cereale)
Ryegrass (Lolium multiflorum)
Oats (Avena sativa)
Browntop Millet (Panicum ramosum)
Dane Proso Millet (Panicum miliaceum)
Peredovik Sunflower (Helianthus annus)
Soybeans (Glycine max)
Common Lespedeza (Kummerowia striata)
Kobe Lespedeza (Kummerowia striata)
Grain Sorghum (Sorghum bicolor)
Corn (Zea mays)
Chufa (Cyperus esculentus)
Partridge Pea (Cassia fasciculata)

Moist Soil Area – Table 6

Smart weeds (Polygonum sp.)
Wild Millets (Echinochloa sp.)
Spike Rush (Eleocharis sp.)
Panicums (Panicum sp.)
Yellow/Purple Nutsedges (Cyperus esculentus or rotundus)
Paspalums (Paspalum sp.)
Deer Pea (Vigna luteola)
Leafy Three-Square (Scirpus robustus)
Olney Bulrush (Scirpus olneyi)
Tender New Growth (NA)

Native Prairie – Table 6

Showy Primrose (Oenothera speciosa)
Black-eyed Susan (Rudbekia hirta)
Prairie Blazing Star (Liatris pycnostachya)
Lance-leafed Coreopsis (Coreopsis lanceolata)
Mexican Hat (Rotibida columaris or peduncularis)
Gayfeather (Liatris elegans)
Eastern Gammagrass (Tripsacum dactydoides)
Coneflowers (Ratibida sp.)
Big Bluestem (Andropogon gerardii)
Little Bluestem (Schizachyrium scoparium)
Indiangrass (Sorghastrum nutans)
Switchgrass (Panicum virgatum)

Upland – Table 6

Beggar Ticks (Desmodium sp.)
Partridge Pea (Cassia fasciculata)
Little Bluestem (Shizachyrium scoparium)
Honeysuckle (Lonicera japonica)
Golden Rods (Solidago sp.)

SCIENTIFIC NAMES OF PLANT SPECIES

LIST OF TABLES 1 – 6

Upland – Table 6 (Continued)

Rag Weeds (Ambrosia sp.)
Switchgrass (Panicum virgatum)
Lespedezas (Lespedeza sp. or Kummerowia sp.)
Prairie Grasses (NA)